UCRL-JC-124542 Abs

Abstract for the 1996 APS-DPP Meeting —

Recent Results from the Nova Neutron Microscope

D. Ress, R. A. Lerche
Lawrence Livermore National Laboratory, Livermore CA

An improved design of the neutron penumbral-aperture microscope (NPAM) is presently being installed on the Nova laser facility. The alignment system has been substantially redesigned to avoid earlier problems with thermal drift and vibration. The new scheme uses a single-mode optical fiber to inject the alignment beam that serves as the straight-line reference. New penumbral coding apertures have been fabricated using a simple grinding procedures to form the mandrels that are subsequently electroplated with gold and acid etched to form the apertures. Recent characterization experiments with sychrotron radiation verify the utility of the new apertures. With the new alignment system and apertures, we expect to achieve 15-μm spatial resolution. The NPAM will be described, particularly the improvements, and available experimental images will be presented.

---

*This work was performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract No. W-7405-Eng-48.